

## *From the Editor's Desk*

The deck of my new house used to be plagued with banana slugs. Big slow-crawling masses of semi-solid slime, at dusk they would come up through the boards of the deck. They got in the compost bucket, ate the cat food (they are omnivorous) and even descended on the gruesome presents my kitties would leave for me after a night of hunting. The last straw was the night I stepped on one of them barefooted. I had to get rid of the things – they were grossing me out!

I started looking around at the habitat and wondered why that side of the house seemed so plagued with them. A friend pointed out that the roof drain emptied out right under the deck boards, creating a lovely dark moist environment. I had to decrease the amount of water being dumped close to the house but did not want to have to dig a drain.

I wondered if a rain barrel would work. I decided to go low-tech at first just to try it out. I got an old trash can, unhooked the rain gutter, put it in the can and waited for it to rain.

After the next shower, I was astonished to see the 55 gallon trash can was almost filled to the rim. The small side porch only has a surface of about 120 square feet, but that much rain had collected. For the next week and a half, I used the water for the indoor and outdoor container plants, to help keep new transplants irrigated and to wash off the walk. It was much easier than going around the side of the house to the spigot and filling watering cans. Too, the plants seemed to like the air-temperature water rather than the colder water coming out of the well. Throughout the summer, the timing worked out perfectly. When I got the bottom of the barrel, it rained.

However, rain barrels would be especially useful during times of drought. Believe it or not, for every inch of rain that falls on a catchment area of 1,000 square feet, you can expect to collect approximately 600 gallons of rainwater. Ten inches of rain falling on a 1,000 square foot catchment area will generate about 6,000 gallons of rainwater. That's right, six thousand gallons! Your roof catchment area is equal to the total square feet of your house, plus the extension of your

eaves. You don't need to consider the angle of your roof, like you would if you were buying roofing material, because rain falls evenly on every part of the roof. (this info and image below from [www.rainbarrelguide.com](http://www.rainbarrelguide.com)).

For municipal water users, rain barrels could be a considerable cost savings.

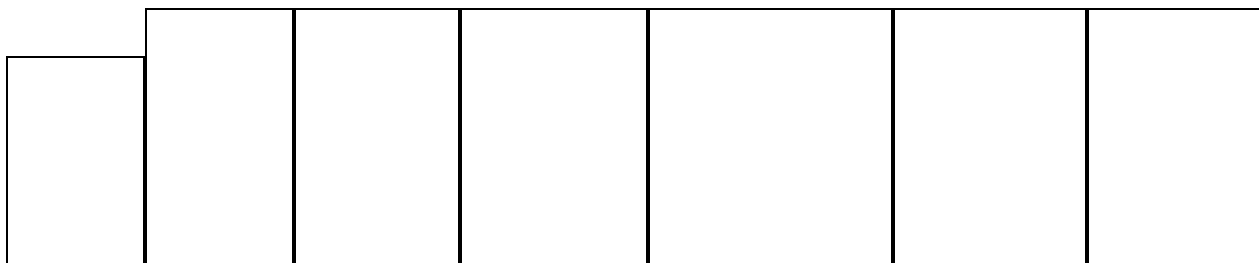
With today's fluoridated, chlorinated water, collected rain which is devoid of minerals and chemicals can be healthier for plants. Rain water does pick up some contamination but with a good filtering system it can be used for human consumption.

Collecting water from roof run-off is an ancient practice.

However, with my inexpensive barrel, one problem I encountered was mosquitoes. In about 5 days, little squiggly larvae would be swimming around in the water. I poured 1/8<sup>th</sup> cup of Clorox in the barrel and that worked to kill them but then I was afraid of using the water on my plants. Finally, friends said just pour some cooking oil in the water which would keep the larvae from being able to break through the surface tension. Another option is a tight fitting lid. Official rain barrels with lids can be purchased from suppliers but the fanciest types can run into big bucks. There are some very nice designs though, with pumps and varying degrees of complexity. Some can even be combined with cisterns to store large quantities of water.

Even simple systems such as mine can be very effective. So experiment with what might work at your house or business. Think of a way to recycle an old barrel. You'll probably be surprised at how well they work. For more information on rain barrels, check out: [www.rainbarrelguide.com](http://www.rainbarrelguide.com), [www.rainsaverusa.com](http://www.rainsaverusa.com), and [www.cleanairgardening.com](http://www.cleanairgardening.com)

Chris Anderson, editor



## FEATURED INVASIVE:

### The Northern Snakehead Fish

Imagine a fish with a mouthful of teeth, the ability to withstand drought, crawl over land and can eat voraciously. They can also grow to be three feet long and spawn twice a year. Such “monster” fish are now being found in the Potomac River and environmentalists fear they are spreading as they have no known predators.

The Northern Snakehead fish was first found in 2002 and is now considered the newest and potentially most devastating aquatic invader. They dominate their surroundings and threaten native fish populations.

The Department of Game and Inland Fisheries (DGIF) is taking the Northern Snakehead very seriously and encourages anyone who finds one to whack it over the head and call the hotline.

However, before being too zealous with the club, know that the snakehead resembles the local bowfin fish.

An information sheet from DGIF notes that as a family, snakeheads have a native range that includes parts of Asia and Africa. However, fisheries scientists have found them in the US with reproducing populations in Florida and Maryland.

It is believed that this exotic intruder entered U.S. waters either by aquarium owners unscrupulously dumping the fish or being unaware of its aggressive nature. The snakehead is sold in live fish food markets so it is also believed that they may have been released by individuals trying to establish a local food source.

The Fish and Wildlife Service notes that at all of their life stages, snakeheads will compete with native species for food. As juveniles, the food they seek includes zooplankton, insect larvae, small crustaceans and the fry of other fishes. As adults, these fish become voracious predators, feeding upon other fishes, crustaceans, frogs,

small reptiles and sometimes birds and mammals.

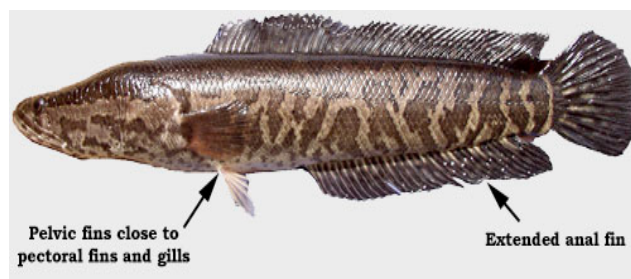
Snakeheads pose a significant threat to native fish and wildlife resources.

As of October 2004 the snakehead family officially became listed as an injurious invasive. This prohibits the importation and interstate transport of the 28 snakehead species.

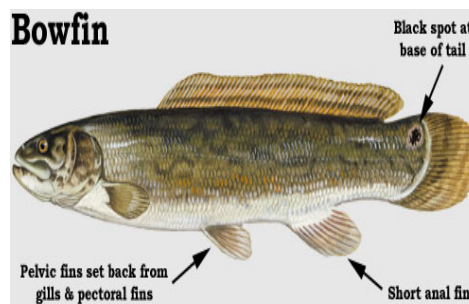
In Virginia, if you find a snakehead, call the toll-free hotline operated by DGIF at 1-800-770-4951.

Images below from [www.dgif.virginia.gov](http://www.dgif.virginia.gov). More info available at [www.protectyourwaters.net](http://www.protectyourwaters.net) and [www.fcsc.usgs.gov](http://www.fcsc.usgs.gov)

### Northern Snakehead



### Similar-Appearing Native Species





## CHINQUAPIN

### OAK — *Quercus muehlenbergii*

Page County has a treasure. The second largest chinquapin oak in the state of Virginia is located on Court Street behind the county administration building. With a circumference of 19 feet, the canopy of this specimen is estimated to have a 132 foot spread. An area forester examined the tree and, due to its size, puts its age at about 250 years old. The branches open into a broad pyramid with an open airy canopy. *Quercus muehlenbergii* is a deciduous oak which turns yellow in the fall with leaves that look very similar to the chestnut.



CHINQUAPIN

Although native to this area, the tree is not often found, the previous settlers prizing this wood for their houses and furniture. This tree produces an abundance of smaller acorns, which reputedly are the sweetest of all. The Native Americans and wildlife relished this trees fruit.

This tree is also highly adaptable in soils and water requirements, but seems to do best in a deeper alluvial (bottomland) soil with plenty of water.

Of Algonquian origin, the name is thought to have been derived from the word checkinka. Spellings include chinquapin and chinkapin and it is also known as yellow chestnut oak, chestnut oak, rock chestnut oak, rock oak, and yellow oak.

Do you have a big tree on your property? We are compiling a Page County Big Tree List. We can submit your specimen tree to the Virginia Big Tree Register and it may even qualify for the Champion Tree Program. Call 743-4808 for info. (graphics and info from [www.countrysidetrees.com](http://www.countrysidetrees.com) & [www.dnr.state.oh.us](http://www.dnr.state.oh.us))

## YOUTH FOR ENVIRONMENTAL PROTECTION STENCIL STORM DRAINS

Citizens in Shenandoah may notice something written around storm drains in the downtown area. For a club project, about 12 kids with the Youth for Environmental Protection or YEP walked around with spray paint and used stencils to encourage people to “Protect Your Water” and “Don’t Dump”.

Materials for the project were provided by the Department of Environmental Services as part of a volunteer water pollution project organized by the Ocean Conservancy and the Environmental Protection Agency.

Information on the campaign notes that storm drains are a huge source of water pollution in the United States. Few people know that washing dirt and pollutants off driveways, over-fertilizing their lawns, and dumping debris directly into storm drains helps to pollute local waterways and ocean areas.

In the town of Shenandoah, this would mean the Shenandoah River.

During rain storms, any litter thrown on the street also gets washed directly to the river.

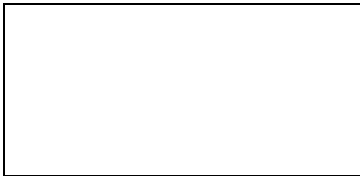
A single quart of oil can contaminate two million gallons of drinking water, or create an oil slick that covers eight acres.

Kudos to the environmental stewardship of these kids and to volunteer coordinator, Wendy Williams of Shenandoah.

## LOCAL TRANSPORTATION ASSOCIATION COMMITTS TO “GREEN” VEHICLES

The Virginia Regional Transit Association, the organization that oversees Page County’s bus service, recently purchased three new 2004 Toyota Prius Hybrid vehicles. The vehicles utilize Hybrid Synergy Drive ® system. The vehicles have very low emissions and meet even the strictest industry emissions standards. The hybrid engine has approximately 110 hp and has an estimated 60 city/51 highway/55 combined mpg. According to [pressroom.com](http://www.pressroom.com), the 2004 Prius has also received ““The International Engine of the Year honor adds to Prius' recent accolades, which include the 2004 North American Car of the Year, Motor Trend 2004 Car of the Year, and the Society of Automotive Engineer's (SAE) Best Engineered Vehicle for 2004.” These energy efficient and environmentally safe vehicles are proving to be an excellent addition to the Virginia Regional Transit Association fleet.

Information courtesy of [www.toyota.com](http://www.toyota.com) and [www.pressroom.com](http://www.pressroom.com).



## WORLD LEADESRS PLEDGE TO REDUCE WASTE, RECYCLE RESOURCES

SAVANNAH, GA - -National leaders participating in the G-8 Summit reaffirmed their commitment to sustainable development and approved an initiative to encourage nations to reduce waste and reuse and recycle resources.

The G-8 member nations will formally launch the 3R initiative during a conference to be held in Japan in spring 2005, but released a few of the details during a summit in Georgia that concluded on June 10.

The nations released a statement saying they would seek to reduce barriers to the international flow of goods and materials for recycling and remanufacturing as well as for products made from recycled and remanufactured materials. They also will promote the exchange of cleaner, more efficient technologies and encourage cooperation among governments and the private sector to promote recycling and reuse.

The G-8 nations also are pledging to cooperate with developing countries in such areas as capacity building, raising public awareness, human resources development and implantation of recycling projects.

The G-8 consists of the United States, Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and representatives of the European Union.

(reprinted from Headline News, June 11, 2004)

**Do you have something you would like to contribute to the Department of Environmental Services newsletter or website? Let us know – the newsletter is published quarterly, and the website can be updated anytime.**





## Notes from the Big Gem

### The Big Gem: an Inheritance and a Legacy

Hi everyone. Autumn is upon us and the vivid fall colors at the Big Gem will shortly turn to winter's hues. The cooler weather hints at the holidays just around the corner. Thinking of the holidays makes me think of the many gift exchanges which we have taken part in as part of our Holiday observations. I was thinking in particular about the gifts we sometimes get that aren't quite what we expected or really want. "It doesn't fit", "It's not my style" or "What am I supposed to do with this?" Any of that sound familiar? Have we ever been embarrassed by a youngsters uncensored comments or ungrateful reaction to a gift? Not uncommon, I'm afraid, to fail to look much beyond the wrapping.

The Big Gem is an inheritance, a gift brought to us through hard work, vision and partnerships. Something we can have, to use and enjoy.

Before this round of work began, the property was not unlike that fuzzy green sweater, or those hand-me-down boots. A little shaggy from unmanaged overgrowth and a little worn from the industrial days. The true value of this gift may not have been immediately apparent. Can we look beyond the wrapping and see the wonderful opportunity we have in our hands? The Big Gem Park project is truly a gem. The potential to romance a gleaming treasure from it, is evident to those who can see beyond the wrapping. Within our 68 acre package, there lies the potential for cultural enhancement through music and drama at our amphitheater, the home team pride of cheering fans at our athletic fields, the invigoration of a brisk hike through our woodland trails, the peaceful pleasure of watching birds and wildlife enjoying the benefits of managed habitat, the potential of all this lies waiting, quietly for our sponsorship and action. These are but a few facets of our fabulous Gem ready to be polished and shine.

What a fine inheritance to receive, but how much greater the legacy, should we succeed in bringing the potential of the Big Gem Park Project out to be enjoyed and recognized by everyone. Here is one chance to make a permanent and positive change for the better. To learn more about how your contributions of time, sponsorship and expertise can help create a long lasting gift to the community, contact me at 652-0718 or [BigGem@TownofShenandoah.com](mailto:BigGem@TownofShenandoah.com)

See you soon, Dane

## WATER FACTS

- There is the same amount of water on Earth as there was when the Earth was formed. The water from your faucet could contain molecules that dinosaurs drank.
- Nearly 97% of the world's water is salty or otherwise undrinkable. Another 2% is locked in ice caps and glaciers. That leaves just 1% for all of humanity's needs – all its residential, agricultural, manufacturing, community and personal needs.
- About 17,000,000 households use private wells for their water supply.
- An acre of corn gives off 4,000 gallons of water a day by evaporation.
- 80% of the Earth's surface is water.
- Water regulates the Earth's temperature. It also regulates the temperature of the human body, carries nutrients and oxygen to cells, cushions joints, protects organs and tissues and removes waste.
- 75% of the human brain is water and about 75% of a living tree is water.
- Water is part of a deeply interconnected system. What we pour on the ground ends up in our water, and what we spew in the sky ends up in our water.
- The average total home water use for each person in the US is about 50 gallons a day.
- Water expands 9% when it freezes. Frozen water (ice) is lighter than water, which is why ice float

## The Page County Department of Environmental Services Update

The Department has been busy since the last newsletter: following the Household Hazardous Waste Clean Up event in July, we got to talk to a lot more folks about local environmental issues at the Page Valley Fair. Sharing a booth with the Friends of Shenandoah River, the Department handed out brochures, information sheets, automobile trash bags, flyswatters, notepads, recycling “tattoos”, litter prevention stickers, and many other educational items.

We also signed up volunteers for our ground water study and started a list of those interested in having their well water tested for physical properties.

During September, with the help of VDOT, we posted new Welcome to Page County/Please Don't Litter signs at the six entrances to the county, on River Road and on highway 340 north and south of Luray. We appreciate all the nice comments about the signs. Hopefully it will help visitors and locals alike appreciate our scenic beauty and not purposefully destroy it with roadside litter.

In October, we set up recycling at the Heritage Festival and, with the help of some hard working youngsters who are raising money to build a new skate park in Stanley, we gathered about 20 large garbage bags full of aluminum and plastic soda bottles. It was interesting watching the public throw recyclable containers into the trash despite having bins marked for recycling immediately

next to the garbage. However, quite a few festival goers gave us encouragement that yes, recycling is important, which helped to balance the frustration of having to go into the trash constantly during the two day event to collect the recyclable containers. Maybe with continued recycling efforts, people will begin to look for the recycle bins rather than automatically chucking their containers in the trash.

In October, we helped to host the first public meeting on the Mill Creek watershed. Representatives from the Department of Environmental Quality and Virginia Tech discussed the initial findings from data collected and gathered information from attendees on the watershed.

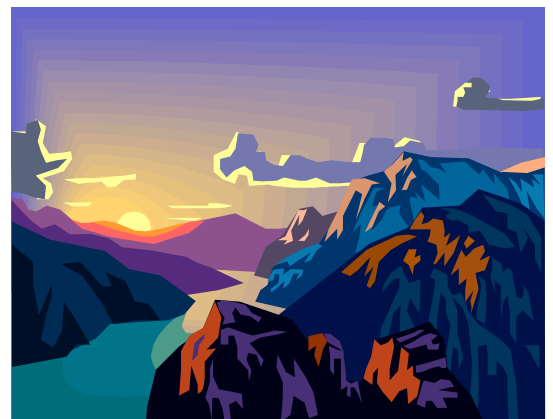
The Department also met with the Youth for Environmental Protection to stencil storm drains in Shenandoah with slogans encouraging water protection. Both the Town of Shenandoah and VDOT gave their permission for the project.

Plans are underway for the 13<sup>th</sup> annual conference of the Association of Virginia Gypsy Moth Managers to be held at the Mimslyn Inn, February 23-35, 2005.

We also attended a Stream Symposium held at UVA-Charlottesville. Findings from a 25 year stream study related air quality with reduced brook trout in the Shenandoah Valley. More attention is being paid to air quality and the interaction with water quality. Watch for an article in the next issue of the newsletter on local air quality.

---

**ECOTIP:** Don't immediately replace your ink cartridge when your computer indicates the ink is getting low ~ you can get quite a few more copies out of it before actually having to replace it. Look for places to recycle the old ink jet cartridge like local schools or call the Department at 743-4808 to recycle it.



... affecting Page County's water.

Under the farms, homes, businesses and roads of the county, a labyrinthine honeycomb of chambers and spaces allows ground water to flow and intersect. Karst topography is unique in its complex underground caverns and the immediate connection to surface water.

The project has three phases: the first is locating the well drillers' completion reports from the Virginia Department of Health. Next, information such as depth of wells, flow rates and geology are entered into a data base. Finally, wells will be tested to determine physical properties such as pH, dissolved oxygen, temperature and salinity. A GPS unit will be used to accurately locate the wells and eventually maps can be created to show the results of the project.

There are several agencies involved with this project including the Page County Water Quality Advisory Committee (WQAC), the Page County Health Department, geologists, well drillers, environmental consultants and volunteers.

Volunteers are needed to help with all aspects of the ground water study. To get involved with this exciting project, please call 743-4808.

NOTE: Would you like your well monitored for FREE? We are locating wells around the county to test for physical properties such as pH, dissolved oxygen, temperature, salinity and conductivity. There is no charge for this service. Please call 743-4808 if you are interested.



## Littering By Joe C. – Akron, Ohio\*

Looking around my community, I see many people who demand respect, yet do nothing to earn it. They feel superior and entitled to some sort of homage. This attitude can even go a step further. It seems to me that this conscious thought pattern is a contributing factor to the problem of littering.

Littering comes down to disrespect. This frame of mind leads individuals not to make a trip to a nearby trash receptacle and instead settle for tossing their garbage aside...any place is fine. As a result of their laziness and disrespect, these individuals' actions lead to plants and animals dying prematurely. Plants react differently to the decomposition of garbage. Usually the surrounding soil becomes inadequate to continue to nurturing their development.

Plastic fragments and glass bottle shards harm animals. Some simply stumble on broken glass or plastic, or are cut by aluminum cans. Their wounds often become infected and result in disability.

When I think of littering, I think of its effects. I try and respect nature and its creatures. Humans need to learn to stop worrying about dominating and instead live in harmony. When I look around and witness peoples' immaturity, it is clear why so many creatures are victims of peoples' disregard. It should be a common courtesy to throw away your own garbage. Would you like to clean up after someone else, or feel the effects of their filth? Of course not!

What littering boils down to is the fact that people need to learn to respect one another and their surroundings. No one wants to live in filth and suffer its effects. We need to learn to live clean lives that contribute to our environment, and ourselves.

\* reprinted from [www.teenink.com](http://www.teenink.com) – a monthly print magazine, website, and a book series all written by teens for teens. There are over 16,000 pages of student writing at this site. Now in its 15<sup>th</sup> year of publishing.

## NATURE'S HOSTILE TAKEOVER PATHWAYS OF INVASION

They travel by trains and boats and planes, sequestered in cargo, stashed in coolers, even hitch-hiking in the muddy grooves of hiking boots. With a penchant for eating, out competing and generally displacing their indigenous hosts, invasive species have earned the official standing as a leading threat – second only to habitat destruction – to the native species of the United States.

Some scientists are calling this ‘evolution in reverse’. Seen in this perspective, native plants are ‘pinnacles of evolution,’ having evolved as highly specialized members of plant and animal communities (Christian Science Monitor, 10/99). The miracle of evolution, as explained by the Virginia Native Plant Society: “Plants and animals evolve together to create unique natural communities, weaving a complex web of interrelationships. Flowers often bloom and fruits ripen in synchrony with the needs of the animals that pollinate the flowers and disperse the seeds. The flowers go to seed coincidentally when songbirds are fattening for the autumn migration. Gorging zestfully, the birds scatter much of what they fail to eat, thus helping to disperse the plant’s seed. Yet alien plants rarely keep time with the internal clocks of our native wildlife, nor conform to the shape and size they require. In North America, plants are considered native if they occurred here before European settlement. Since then, many plants have been introduced from distant shores- both deliberately and accidentally. (From the River Spirit Book of Living in the South Fork, p. 21)

### SOME INVASIVE EXOTIC PLANTS IN PAGE COUNTY:

Tree of Heaven -	Ailanthus altissima
Oriental Bittersweet -	Celastrus orbiculata
Multiflora Rose -	Multiflora rose



Hawksbill Creek, Page County FOSR Water Quality Data also available at: [www.fosr.org](http://www.fosr.org)  
[www.purewaterforum.org/waterwindow/](http://www.purewaterforum.org/waterwindow/)

Kudzu -	Pueraria montana
Honeysuckle -	Lonicera japonica
Thistle -	Cirsium arvense
Garlic Mustard -	Allaria petiolata
Johnson Grass -	Sorghum halepense

### NATIVE PLANTS

Require minimal maintenance – such as watering, fertilizer and pesticides

This reduces the pollutants that wash into our local streams, rivers and ultimately, the Chesapeake Bay

Beneficial plants often help wildlife as well, providing food, shelter, and places to raise their young

Bayscapes ([www.acb-online.org](http://www.acb-online.org))

Some alien plants can be well-behaved newcomers in local settings, just as some natives can be introduced to a garden in which they are aggressive misfits. Taking the trouble to find out what’s what will allow us to more freely enjoy our yards, gardens and green spaces in the future. For native plant information, to find out which nurseries propagate them, fact sheets on alien plants invading Virginia, the best means of control, etc., contact

The Virginia Native Plant Society  
(540) 434-8494

1398 Cumberland Dr.

Harrisonburg, VA 22801

[www.vnps.org](http://www.vnps.org)

Also visit [www.hort.vt.edu/vnps](http://www.hort.vt.edu/vnps) and  
[www.state.va.us/dcr/vaher.html](http://www.state.va.us/dcr/vaher.html)

### Please Recycle Your Christmas Tree

Luray Residents – Watch the Page News & Courier for notice of curbside pick-up after the holidays

## BECOME A WATER MONITOR

The Friends of the Shenandoah River need help collecting water samples from the streams of Page County.

You can contribute by volunteering only a few hours a month.

Call Charles Newton at 778-5400

## WE ALL LIVE DOWNSTREAM